

THE INVENTION CLAIMED IS:

1. A system configured to pattern a substrate comprising:

5 a lithography subsystem configured to form a patterned masking layer on the substrate;

an etch subsystem configured to receive the substrate after the patterned masking layer has been formed thereon and to etch the substrate to form one or more etched features on the substrate, the etch subsystem having an  
10 integrated inspection system configured to inspect the substrate; and

a controller coupled to the lithography subsystem and the etch subsystem, the controller having computer program code configured to communicate with each subsystem  
15 and to perform the steps of:

receiving information about the substrate from the integrated inspection system of the etch subsystem; and

adjusting a stepper focus of the lithography  
20 subsystem during formation of a subsequent patterned masking layer based at least in part on the information received from the etch subsystem.

2. A system configured to pattern a substrate comprising:

25 a low K dielectric deposition subsystem configured to deposit one or more low K dielectric layers on the substrate, the low K dielectric deposition subsystem having an integrated inspection system configured to inspect the  
30 substrate;

an etch subsystem configured to receive the substrate after one or more low K dielectric layers have been deposited on the substrate and to etch the substrate to form one or more etched features in the one or more low K  
35 dielectric layers formed on the substrate, the etch

subsystem having an integrated inspection system configured to inspect the substrate; and

5 a controller coupled to the low K dielectric deposition subsystem and the etch subsystem, the controller having computer program code configured to communicate with each subsystem and to perform the steps of:

receiving information about the substrate from the integrated inspection system of the low K dielectric deposition subsystem;

10 determining an etch process to perform within the etch subsystem based at least in part on the information received from the inspection system of the low K dielectric deposition subsystem;

15 directing the etch subsystem to etch at least one low K dielectric layer on the substrate based on the etch process;

receiving information about the substrate from the integrated inspection system of the etch subsystem; and

20 adjusting etching of the substrate in real-time based on the information received from the etch subsystem.